TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL TYPE (PCT PROCESS)

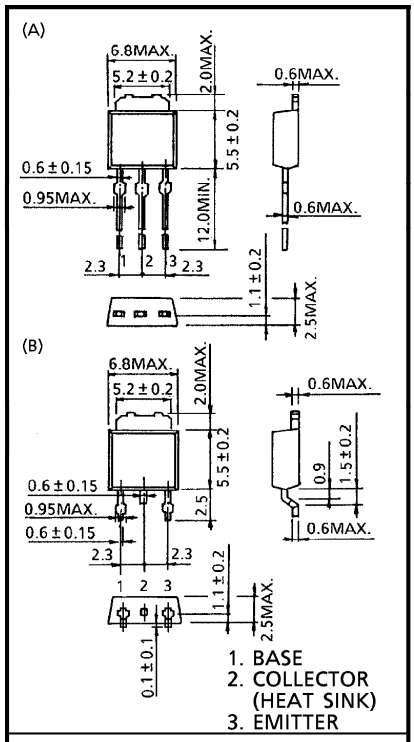
# 2SC3072

STROBE FLASH APPLICATIONS

MEDIUM POWER AMPLIFIER APPLICATIONS

- High DC Current Gain : $h_{FE}$ = 140~450 ($V_{CE}$ = 2 V, $I_C$ = 0.5 A)
  $h_{FE}$ = 70 (Min.) ($V_{CE}$ = 2 V, $I_C$ = 4 A)
- Low Collector Saturation Voltage
  : $V_{CE\ (sat)}$ = 1.0 V (Max.) ($I_C$ = 4 A, $I_B$ = 0.1 A)
- High Power Dissipation
  : $P_C$ = 10 W (Tc = 25°C), $P_C$ = 1.0 W (Ta = 25°C)

Unit in mm




| | |
|---|---|
| JEDEC | — |
| EIAJ | — |
| TOSHIBA | (A) 2-7B1A (B) 2-7B2A |

Weight : 0.36 g

MAXIMUM RATINGS (Ta = 25°C)

| CHARACTERISTIC | | SYMBOL | RATING | UNIT |
|---|---|---|---|---|
| Collector-Base Voltage | | $V_{CBO}$ | 50 | V |
| Collector-Emitter Voltage | | $V_{CES}$ | 40 | V |
| | | $V_{CEO}$ | 20 | |
| Emitter-Base Voltage | | $V_{EBO}$ | 8 | V |
| Collector Current | DC | $I_C$ | 5 | A |
| | Pulsed (Note 1) | $I_{CP}$ | 8 | A |
| Base Current | | $I_B$ | 0.5 | A |
| Collector Power Dissipation | Ta = 25°C | $P_C$ | 1.0 | W |
| | Tc = 25°C | | 10 | |
| Junction Temperature | | $T_j$ | 150 | °C |
| Storage Temperature Range | | $T_{stg}$ | −55~150 | °C |

Note 1 : Pulse Test : Pulse Width = 10 ms (Max.) Duty Cycle = 30% (Max.)

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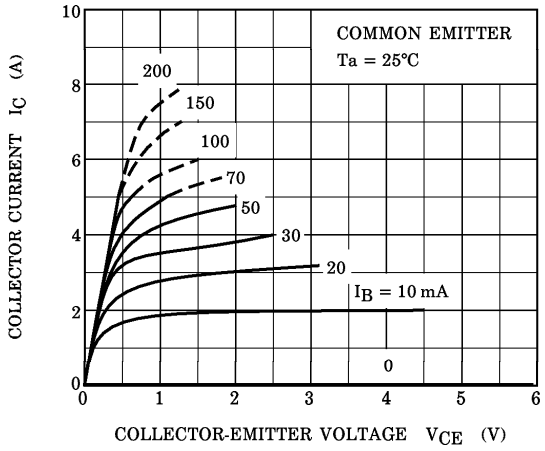
ELECTRICAL CHARACTERISTICS (Ta = 25°C)

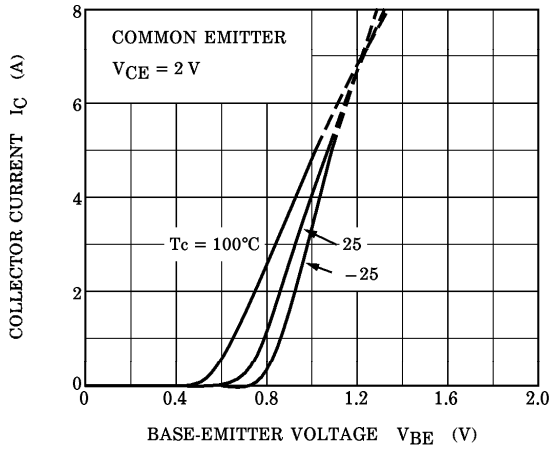
| CHARACTERISTIC | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|---|---|---|---|---|---|---|
| Collector Cut-off Current | $I_{CBO}$ | $V_{CB}$ = 40 V, $I_E$ = 0 | — | — | 100 | nA |
| Emitter Cut-off Current | $I_{EBO}$ | $V_{EB}$ = 8 V, $I_C$ = 0 | — | — | 100 | nA |
| Collector-Emitter Breakdown Voltage | $V_{(BR)CEO}$ | $I_C$ = 10 mA, $I_B$ = 0 | 20 | — | — | V |
| DC Current Gain | $h_{FE(1)}$ (Note 2) | $V_{CE}$ = 2 V, $I_C$ = 0.5 A | 140 | — | 450 | |
| | $h_{FE(2)}$ | $V_{CE}$ = 2 V, $I_C$ = 4 A | 70 | — | — | |
| Collector-Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C$ = 4 A, $I_B$ = 0.1 A | — | — | 1.0 | V |
| Base-Emitter Voltage | $V_{BE}$ | $V_{CE}$ = 2 V, $I_C$ = 4 A | — | — | 1.5 | V |
| Transition Frequency | $f_T$ | $V_{CE}$ = 2 V, $I_C$ = 0.5 A | — | 100 | — | MHz |
| Collector Output Capacitance | $C_{ob}$ | $V_{CB}$ = 10 V, $I_E$ = 0, f = 1 MHz | — | 40 | — | pF |

Note 2 : $h_{FE(1)}$ Classification A : 140~240, B : 200~330, C : 300~450

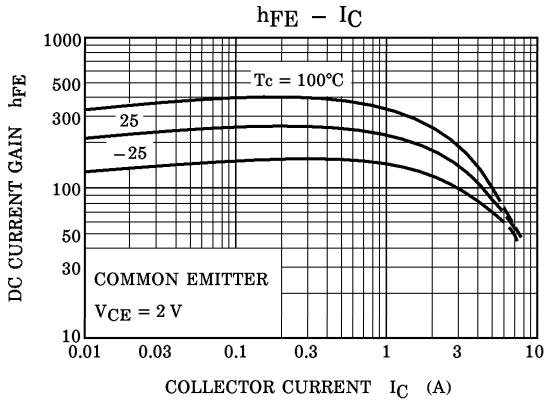
$I_C$ – $V_{CE}$



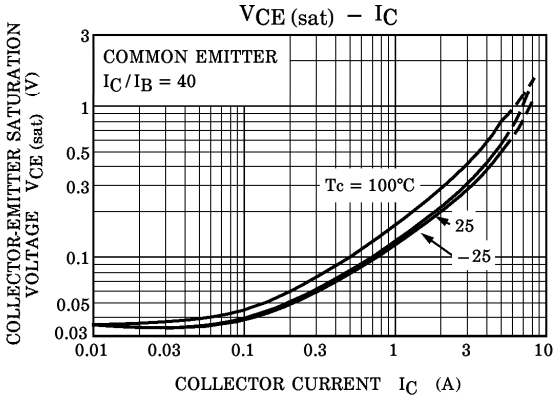

$I_C$ – $V_{BE}$



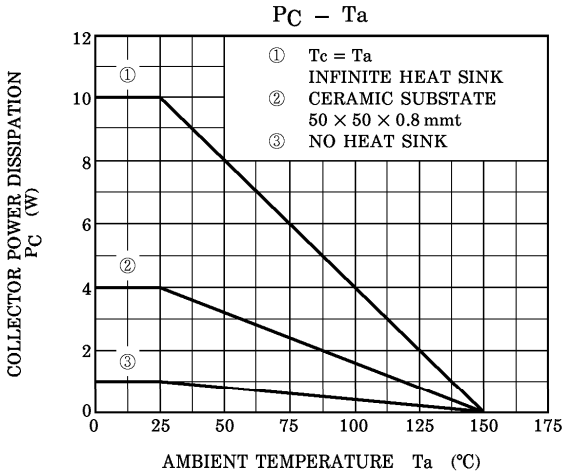

$h_{FE}$ – $I_C$




$V_{CE\,(sat)}$ – $I_C$




$P_C$ – Ta




SAFE OPERATING AREA